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JAPANESE

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PATENT ABSTRACTS OF JAPAN

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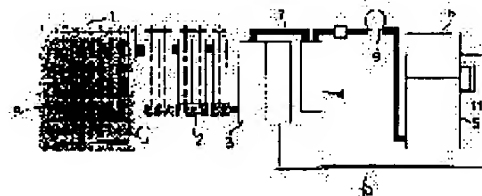
(72)Inventor : MOTODA KENRO

(54) TREATMENT OF WASTE TREATING LIQUID OF INDUSTRIAL WASTE

(57)Abstract:

PURPOSE: To make a waste treating liquid non-polluting and to recycle the waste liquid without generating a secondary pollution by dissolving the hydrogen chloride in the formed gases obtd. by a heat treatment of industrial waste to recover the hydrogen chloride and neutralizing this waste treating liquid, then evaporating moisture from the neutral soln. and solidifying chloride compds.

CONSTITUTION: An industrial waste 8 is charged into a thermal decomposing device 1 where the industrial waste 8 is thermally decomposed under a negative pressure by a pressure reducing pump 9. The formed gases are passed through a cracking filter 3 and a neutral washing device 4 and are subjected to combustion or thermal cracking treatment by a deodorizing treatment device 5. An alkaline material is charged into the acidic waste liquid generated in a soln. filter 3 to neutralize the waste liquid in a waste neutralizing device 6. The moisture is evaporated from the resulted aq. chloride compd. soln. and the chlorine compd. is collected, by which the waste treating liquid is made non- polluting and is recycled. The moisture evaporation is executed by utilizing the heat energy generated in a deodorization treatment device 5 and the heat energy is effectively utilized.



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CLAIMS

[Claim(s)]

[Claim 1] The art of the processing waste fluid produced in case the industrial waste containing the chlorine-based high molecular compound characterized by providing the following is heat-treated. (a) Hydrogen chloride recovery process in which introduce into water the hydrogen chloride generated by heat-treatment of industrial waste, and hydrogen chlorides are dissolved and collected. (b) Processing liquid neutralization process which neutralizes the solution which the above-mentioned hydrogen chloride dissolved. (c) Chlorine compound collection process in which the chlorine compound which the moisture of the solution by which neutralization was carried out [above-mentioned] was evaporated, and was generated in the above-mentioned processing liquid neutralization process is obtained.

[Claim 2] The processing waste fluid art of the industrial waste according to claim 1 characterized by including further impurity removal process in which impurities other than the chlorine compound in this product are removed out of the above-mentioned product by heating the product containing the chlorine compound obtained by the above-mentioned chlorine compound collection process after the above-mentioned chlorine compound collection process.

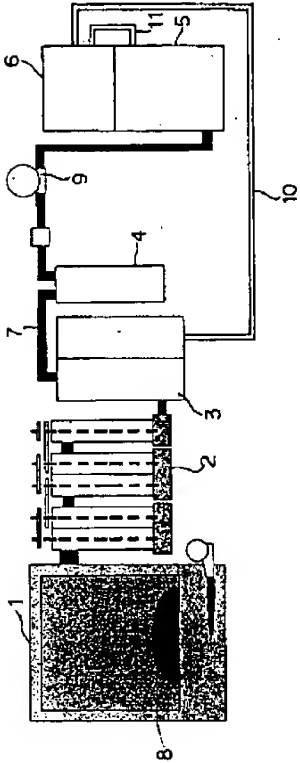
[Claim 3] The processing waste fluid art of the industrial waste according to claim 1 or 2 characterized by evaporating the moisture of the solution by which neutralization was carried out [above-mentioned] in the above-mentioned chlorine compound collection process using the generation gas obtained by heat-treatment of industrial waste.

[Claim 4] The processing waste fluid art of the industrial waste according to claim 1 characterized by carrying out combustion processing of the gas generated by the above-mentioned chlorine compound collection process with the generation gas obtained by heat-treatment of the above-mentioned industrial waste.

[Claim 5] The processing waste fluid art of the industrial waste according to claim 2 characterized by carrying out combustion processing of the gas generated by the above-mentioned impurity removal process with the generation gas obtained by heat-treatment of the above-mentioned industrial waste.

[Translation done.]

Drawing selection [Representative drawing]



[Translation done.]

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Industrial Application] this invention relates to the art of processing waste fluid which can attain the recycling using the generating gas obtained by heat-treatment, and it not only makes processing waste fluid pollution-free especially, but can aim at maintenance of earth environment, and reduction of waste treatment cost about the art of the processing waste fluid produced in case the industrial waste containing a chlorine-based high molecular compound is heat-treated.

[0002]

[Description of the Prior Art] Now, instead of incinerating waste, the waste treatment method by the pyrolysis processing without toxic substance generating of dioxin etc. is proposed as a method of processing the industrial waste containing the chlorine-based high molecular compound discarded from works, ordinary homes, a hospital, etc. By the waste treatment method by such pyrolysis, waste is heated in a furnace to the temperature more than the pyrolysis temperature of a vinyl chloride (150 degrees C or more), and waste is processed. In this case, the hydrogen chloride gas which the hydrogen chloride occurred in connection with the pyrolysis of a vinyl chloride, and occurred there is introduced into water, and chlorine is collected by dissolving a hydrogen chloride in water.

[0003] Here, in the non-regulated area, discharge processing of the waste fluid which dissolved the hydrogen chloride is carried out to the sewage, a river, the sea, etc. as it is. Moreover, in the area with ecocrisis regulation, the processing was performed by requesting an industrial waste treatment company. On the other hand, the generation gas produced by the pyrolysis of waste was further burned after hydrogen chloride recovery, removed the injurious ingredient, and was emitting it into the atmosphere.

[0004]

[Problem(s) to be Solved by the Invention] However, in such a waste fluid art, although it is a non-regulated area, when waste fluid was discharged as it was, we were anxious about contamination of the river by the hydrogen chloride and acid waste fluid which are contained in waste fluid, or the ocean, the influence on an ecosystem, etc., and there was a problem that pollution new again may be produced there. Moreover, when the processing was left to a waste treatment contractor, naturally in there, the further costs will arise and there was also a problem that processing cost will go up. On the other hand, emitting generation gas to the atmosphere after combustion will miss aimlessly the heat energy produced by combustion in the atmosphere, and it also had the problem of making special energy useless.

[0005] this invention aims at offering the art of processing waste fluid which can generate a by-product, can attain recycling of processing waste fluid, and it not only makes processing waste fluid pollution-free, but can aim at reduction of waste treatment cost in view of the above-mentioned problem, without generating secondary pollution. Moreover, it aims also at offering the art of the processing waste fluid which can prevent the futility of energy using the generating gas obtained by heat-treatment.

[0006]

[Means for Solving the Problem] The processing waste fluid art of the industrial waste which starts this invention of a claim 1 in order to attain the above-mentioned purpose In the art of the processing waste fluid produced in case the industrial waste containing a chlorine-based high molecular compound is heat-treated (a) Hydrogen chloride recovery process in which introduce into water the hydrogen chloride generated by heat-treatment of industrial waste, and hydrogen chlorides are dissolved and collected, (b) The processing liquid neutralization process which neutralizes the solution which the above-mentioned hydrogen chloride dissolved, and (c) The moisture of the solution by which neutralization was carried out [above-mentioned] is evaporated, and it is considering as the composition which comes to have chlorine compound collection process in which the chlorine compound generated in the above-mentioned processing liquid neutralization process is obtained. Here, if it is in invention of a claim 2, the product containing the

chlorine compound obtained by the above-mentioned chlorine compound collection process after the above-mentioned chlorine compound collection process is heated, and it is considering as the composition which includes further impurity removal process in which impurities other than a chlorine compound are removed from this product.

[0007] On the other hand, if it is in invention of a claim 3, it is considering as the composition which evaporates the moisture of the solution by which neutralization was carried out [above-mentioned] using the generation gas obtained by heat-treatment of industrial waste in the above-mentioned chlorine compound collection process. Moreover, if it is to the composition which carries out combustion processing of the gas generated by the above-mentioned chlorine compound collection process with the generation gas obtained by heat-treatment of the above-mentioned industrial waste if it is in invention of a claim 4, and invention of a claim 5, it is carrying out as the composition carry out combustion processing with the generation gas obtained by heat-treatment of the above-mentioned industrial waste in the gas generate by the above-mentioned impurity removal process.

[0008]

[Function] According to the processing waste fluid art of the industrial waste of this invention concerning the claim 1 equipped with such composition, it collects by dissolving the hydrogen chloride in the generation gas obtained by heat-treatment of industrial waste in water, and a neutral chlorine compound is generated by neutralizing the waste fluid containing this hydrogen chloride. And the chlorine compound in a solution is solidified by evaporating moisture. Thereby, without generating secondary pollution, it attains the recycling and it not only makes processing waste fluid pollution-free, but aims at reduction of waste treatment cost. Moreover, in invention of a claim 2, by heating further after moisture evaporation, an impurity is removed and a chlorine compound with high purity is obtained. Furthermore, in invention of a claim 3, the moisture of neutralization solution is evaporated using the generation gas obtained by heat-treatment of industrial waste. And the futility of the energy acquired by heat-treatment of industrial waste by this is prevented.

[0009] On the other hand, in invention of claims 4 and 5, combustion processing of the gas generated by chlorine compound collection process or impurity removal process is carried out with the generation gas obtained by heat-treatment of the above-mentioned industrial waste. In case combustion processing of the generation gas obtained by heat-treatment of industrial waste is carried out by this, combustion processing of the gas which occurred in the above-mentioned process simultaneously is carried out. Moreover, the heat energy of the gas produced in the above-mentioned process is utilized for combustion processing of generation gas.

[0010]

[Example] Next, with reference to a drawing, it explains per example of this invention. Drawing 1 is drawing showing the outline of the whole composition of an industrial-waste-treatment system in which the method of this invention is applied. drawing 1 -- setting -- 1 -- in a solution filter and 4, a neutralization washing station and 5 show a deodorization processor, 6 shows [pyrolysis equipment and 2 / a tar stripper and 3] waste fluid neutralization equipment, and each is connected by piping 7, 10, and 11 In this system, supply industrial waste 8 to pyrolysis equipment 1, and industrial waste 8 is made to pyrolyze under negative pressure with the pump 9 for reduced pressure, it lets the solution filter 3 and the neutralization washing station 4 pass, and, finally the generation gas is burned or pyrolysis processed in the deodorization processor 5.

[0011] In waste fluid neutralization equipment 6, this invention throws in alkaline matter, such as a sodium hydroxide and a calcium hydroxide, in the acid waste fluid produced with the solution filter 3, and neutralizes waste fluid. And by evaporating moisture from chlorination compound solution, such as a sodium chloride made there and a calcium chloride, and collecting a chlorination compound, without generating secondary pollution, it attains the recycling and it not only makes processing waste fluid pollution-free, but aims at reduction of waste treatment cost. Moreover, moisture evaporation is performed using the heat energy generated with the deodorization processor 5, and heat energy is utilized effectively.

[0012] In the industrial-waste-treatment system which consists of such composition, the solution filter 3 is equipment for performing hydrogen chloride recovery process of this invention, and is bearing the role which is made to dissolve in water the hydrogen chloride produced when a chlorine-based high molecular compound (a vinyl chloride is assumed in this example) is pyrolyzed in pyrolysis equipment 1, and are collected as a hydrochloric acid. Moreover, the neutralization washing station 4 can be formed in the latter part of the solution filter 3, can perform neutralization and absorption of the residual hydrogen chloride contained in the fog-like gas which occurs from the solution filter 3, and can make the hydrogen chloride which fills sodium-hydroxide (NaOH) solution to inside, for example, it was not able to finish taking with the solution filter 3 absorb. Furthermore, in order that the pump 9 for reduced pressure may attract pyrolysis equipment 1, the solution filter 3, and neutralization washing station 4 grade and may make the pyrolysis of

industrial waste perform to the bottom of negative pressure, it is a thing. In addition, the deodorization processors 5 are no odor and equipment which carries out the detoxication by pyrolyzing the component which remains without being absorbed in the solution filter 3 or the neutralization washing station 4 among the generation gas of pyrolysis equipment 1, or making it burn. Here, while lighting with a burner the methane and ethane gas which were generated in pyrolysis equipment 1 and carrying out self-combustion, the heat performs combustion processing and pyrolysis processing of an odor component.

[0013] Here, the composition of this solution filter 3 is shown in drawing 3. This solution filter 3 is roughly divided and consists of a solution tub 30 and stirring equipment 31. Water (H₂O) 32 is filled by the solution tub 30, and the gas of the pyrolysis equipment 1 introduced from the gas-stream entrance 34 is discharged by the effluence-of-gas mouth 36 through water 32. Moreover, the exhaust port 35 is formed in the solution tub 30, and the water 32 of the solution tub 30 can be suitably discharged now to waste fluid neutralization equipment 6 by operation of bulb 35b.

[0014] On the other hand, stirring equipment 31 consists of a rotator 33, and a motor 37, the axis of rotation 38, bearing 39 and a rotary wing 40, and has composition which a rotator 33 and a rotary wing 40 rotate in water 32. In this case, much pore 33a has opened in the rotator 33, and the gas which entered from the gas-stream entrance 34 goes up through pore 33a of a rotator 33 while being stirred by the rotary wing 40. And the foam which comes out of pore 33a is sheared with rotation of a rotator 33, and turns into a still more detailed foam, and the water-soluble component in a foam is dissolved in water 32.

[0015] By the way, if a hydrogen chloride melts into water 32 in the case of a gaseous water-soluble component and this example, water 32 will become acid gradually. Moreover, since a steam is introduced into water 32 before hydrogen chloride generating, the amount of water also increases gradually. Furthermore, in order that water 32 may also absorb the heat energy which a gas has, the temperature also rises gradually. Then, with this solution filter 3, the temperature and ph of water 32 are measured, when it becomes more than constant value with them, bulb 35b is operated, inner water 32 is drained, and water 32 is replaced. Therefore, thereby, the hydrogen chloride contained in the gas of pyrolysis equipment 1 and its heat energy are absorbable.

[0016] Thus, the water 32 in the solution filter 3 is replaced suitably, and the waste fluid is sent to waste fluid neutralization equipment 6 through piping 10. This waste fluid neutralization equipment 6 is equipment for performing the processing liquid neutralization process and chlorine compound collection process of this invention, evaporates moisture from the chlorination compound solution made by it, and collects a chlorination compound while it neutralizes acid waste fluid. If it is in this example, alkaline matter, such as a sodium hydroxide and a calcium hydroxide, is thrown in in acid waste fluid, waste fluid is neutralized, moisture is further evaporated from chlorination compound solution, such as a sodium chloride made there and a calcium chloride, and a chlorination compound is collected.

[0017] On the other hand, the plasticizer of the tar which was not able to be removed by the tar stripper 2, or plastics is mixed in the waste fluid of the solution filter 3 in many cases. Therefore, the high chlorination compound of purity cannot be obtained from a neutralization solution only by evaporating moisture, but the value as a by-product is also a low. Then, if it is in this invention, impurity removal process is established further to remove this impurity, an impurity **** chlorination compound is heated further, an impurity is evaporated, and it is made to obtain the high chlorination compound of purity more. That is, heat an impurity **** chlorination compound at 300 degrees C or more which is the boiling point of tar or a plasticizer, it is made to evaporate, and an impurity is removed. At this time, since the melting point of chlorination compounds, such as a sodium chloride, is 800 degrees C or more, only an impurity will evaporate, behind only the high chlorination compound of purity will remain, and an impurity will be removed.

[0018] Although many heating values are needed in order to heat waste fluid etc. to perform an above-mentioned chlorine compound collection process and above-mentioned impurity removal process here, it is not desirable from the field of waste treatment cost to consume a lot of heat energy in this process. Then, in this invention, waste fluid neutralization equipment 6 is formed in contact with the deodorization processor 5, and reuse of energy and curtailment of waste treatment cost are aimed at, using the heat energy which the hot gas which occurs by the combustion processing and pyrolysis processing in the deodorization processor 5 has as a heat source of the above-mentioned process. Generally, deodorization processing is performed by the deodorization processor 5 at the temperature of about 700 degrees C or more for an odor treatment. And if a calcium chloride is not heated at 320 degrees C or more, the moisture child who has joined together does not secede, for example from it. Then, the heat energy of the gas which occurs from the deodorization processor 5 is utilized, waste fluid is heated at 450 degrees C - 700 degrees C, and it is made to evaporate moisture from a calcium chloride etc. in this example. In addition, evaporating moisture in this invention means making the moisture child who has joined there together break away, and obtaining a chlorination

compound solid-state from a chlorination compound as mentioned above.

[0019] On the other hand, in order for the thing which evaporated the plasticizer and the impurity or it was made to pyrolyze to mix and to make this harmless, it will be necessary to make the gas generated in chlorine compound collection process or impurity removal process burn and pyrolyze. Moreover, in process of the above, the moisture of waste fluid and evaporation of an impurity are achieved and the gas of high temperature occurs in connection with it. Then, it is also possible to lead this generating gas to the deodorization processor 5, to carry out combustion processing or to use those heat energy that it has. the gas which it is prepared in order that the piping 11 in drawing 1 may perform this processing, and is generated from waste fluid neutralization equipment 6 -- the deodorization processor 5 -- leading -- combustion processing -- pyrolysis processing is carried out While processing of a generating gas can be put in block with processing of generation gas and being able to perform it by this, without having separate equipment, the heat energy which a generating gas has is utilizable for the combustion processing and pyrolysis processing in the deodorization processor 5.

[0020]

[Effect of the Invention] As explained above, according to the processing waste fluid art of the industrial waste concerning the claim 1 of this invention By neutralizing this processing waste fluid, generating a chlorine compound, while making it dissolve in water and collecting the hydrogen chlorides in the generation gas obtained by heat-treatment of industrial waste, evaporating the moisture of a neutralization solution further, and solidifying a chlorine compound It is effective in becoming possible it not only to make processing waste fluid pollution-free, but to attain the recycling and to aim at reduction of waste treatment cost, without generating secondary pollution. Moreover, according to invention of a claim 2, by heating further after moisture evaporation, an impurity is removed and it is effective in the ability to obtain a chlorine compound with high purity.

[0021] Furthermore, according to invention of a claim 3, it is effective in the ability to use without futility the energy acquired by heat-treatment of industrial waste by evaporating the moisture of processing waste fluid using the generation gas obtained by heat-treatment of industrial waste.

[0022] On the other hand, it is effective in the ability for processing of a generating gas to be put in block and perform it, without having separate equipment, by carrying out combustion processing of the gas generated by chlorine compound collection process or impurity removal process with the generation gas obtained by heat-treatment of industrial waste according to invention of claims 4 and 5. Moreover, the heat energy of the gas produced in the above-mentioned process is also utilizable for combustion processing of generation gas.

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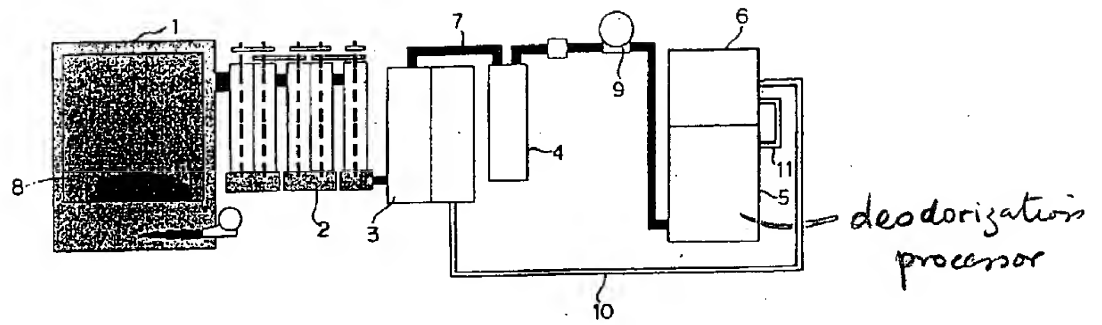
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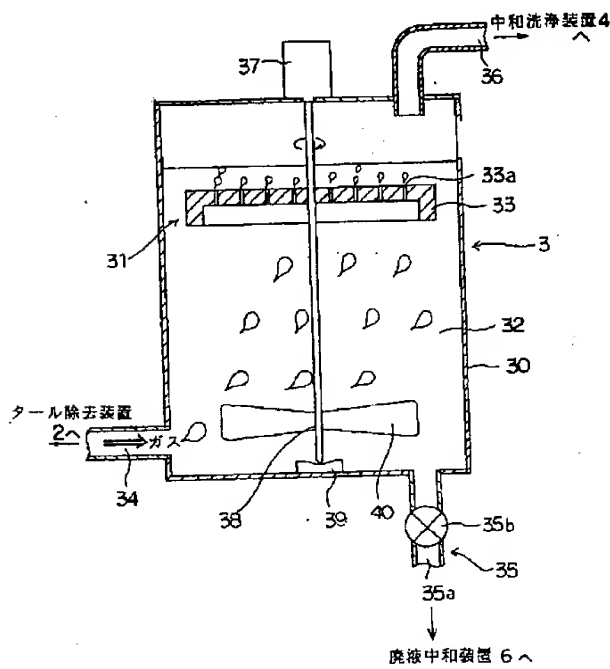
31 攪拌装置

32 水

【図1】



【図2】



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PATENT ABSTRACTS OF JAPAN

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(71)Applicant : N K K PLANT KENSETSU KK

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(72)Inventor : ONO TOSHIYUKI

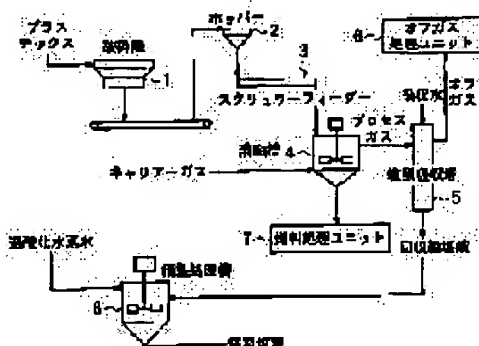
YOKOTA SHIZUO

(54) TREATMENT OF WASTE PLASTIC CONTAINING POLYVINYL CHLORIDE RESIN

(57)Abstract:

PROBLEM TO BE SOLVED: To provide the subject method, by chemically decomposing and treating a waste plastic containing a polyvinyl chloride resin, removing chlorine contained in the polyvinyl chloride resin, obtaining a high-quality fuel containing no chlorine and recovering hydrogen chloride formed by decomposition of the polyvinyl chloride resin as high-purity hydrochloric acid or chlorides.

SOLUTION: A waste plastic containing a polyvinyl chloride resin is chemically decomposed and treated in a melting tank 4 to give a fuel. Hydrogen chloride formed by the decomposition of the polyvinyl chloride resin is recovered as hydrochloric acid or various chlorides in an absorbing tower 5. Then hydrogen peroxide is added to an aqueous solution of the recovered hydrochloric acid and various chlorides in a purifying treatment tank 8 and organic substances contained in the aqueous solution of hydrochloric acid and various chlorides are reacted with hydrogen peroxide, oxidized, decomposed and removed.



JAPANESE

[JP,11-080746,A]

CLAIMS DETAILED DESCRIPTION TECHNICAL FIELD
PRIOR ART EFFECT OF THE INVENTION TECHNICAL
PROBLEM MEANS EXAMPLE DESCRIPTION OF
DRAWINGS DRAWINGS

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CLAIMS

[Claim(s)]

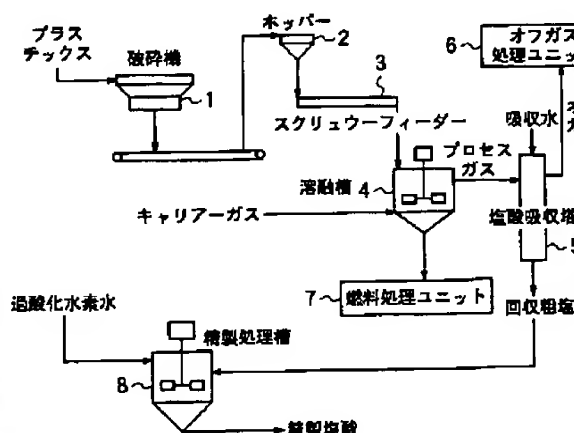
[Claim 1] While carrying out decomposition processing of the waste plastics containing a polyvinyl-chloride resin chemically and obtaining the fuel of a solid-state or a liquid In the art of the waste plastics which collect the hydrogen chlorides produced by disassembly of the aforementioned polyvinyl-chloride resin as a hydrochloric acid or various kinds of chlorides By adding a hydrogen peroxide in the solution of the hydrochloric acid by which recovery was carried out [aforementioned], or various chlorides, making it react with the aforementioned hydrogen . peroxide, oxidizing and decomposing and removing the organic substance contained in the solution of the aforementioned hydrochloric acid or various chlorides The art of the waste plastics containing a polyvinyl-chloride resin characterized by collecting as the hydrochloric acid or the various chlorides of a high grade.

[Claim 2] The way according to claim 1 the pyrolysis by which induction is carried out by heating the aforementioned waste plastics to the temperature of 200 to 360 degrees C performs disassembly of the aforementioned polyvinyl-chloride resin.

[Claim 3] The method according to claim 1 to which a hydrochloric acid, and nothing and the aforementioned hydrochloric acid are made to react with the aforementioned hydrogen peroxide by carrying out scrubbing of the hydrogen chloride generated by disassembly of the aforementioned polyvinyl-chloride resin, using water as an absorption medium

Drawing selection

[[Representative drawing]]



[Translation done.]

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[The technical field to which invention belongs] This invention carries out decomposition processing of the waste plastics containing a polyvinyl-chloride resin chemically, and relates to the art of the waste plastics which collect the hydrogen chlorides produced by disassembly of a polyvinyl-chloride resin as a hydrochloric acid or various kinds of chlorides.

[0002]

[Description of the Prior Art] To the art of the waste plastics which carry out decomposition processing of the waste plastics containing a polyvinyl-chloride resin chemically, and obtain the fuel of a solid-state or a liquid By knowing various processes from the former, heat-treating waste plastics as the typical process, and pyrolyzing the polyvinyl chloride in waste plastics While obtaining the good fuel which removes a part for the chlorine contained in the polyvinyl chloride as a hydrogen chloride, and does not contain chlorine Make water absorb the hydrogen chloride contained in cracked gas at the time of pyrolysis of a polyvinyl chloride, and it collects as a hydrochloric acid. Or the hydrogen chloride contained in the aforementioned cracked gas is made to react with alkaline matter, such as a sodium hydroxide, and the method (henceforth the advanced technology) of collecting as various chlorides is learned.

[0003] Drawing 2 is process drawing in the case of collecting hydrochloric acids as an example of the advanced technology. As shown in a drawing, a crusher 1, the hopper 2, the screw feeder 3, the melting basin 4, and the hydrochloric-acid absorption tower 5 are arranged in this sequence, and after waste plastics are crushed in a crusher 1, they are supplied to a melting basin 4 through a hopper 2 and a screw feeder 3.

[0004] Waste plastics are heated by predetermined temperature by the proper means in a melting basin 4 and/or a screw feeder 3. Consequently, if the polyvinyl chloride in waste plastics has the plastics which otherwise live together, it will be fused with the plastics and will cause a pyrolysis reaction.

[0005] The cracked gas containing a hydrogen chloride which occurred in the pyrolysis reaction time of the waste plastics in a melting basin 4 is blown into the hydrochloric-acid absorption tower 5 by carrier gas, such as nitrogen gas blown into the melting basin 4. the cracked gas blown into the hydrochloric-acid absorption tower 5 -- a column -- scrubbing is carried out with the water injected from the inside upper part, it is absorbed by water and becomes a raw salt acid, and it is discharged and is collected from the exhaust port prepared in the bottom section

[0006] The offgas which is not absorbed by water in the hydrochloric-acid absorption tower 5 is diffused in the atmosphere, after being discharged from the gas exhaust port of the upper part of an absorption tower 5 and carrying out combustion processing in the off-gas processing unit 6. On the other hand, from the exhaust port prepared in the bottom of a melting basin 4, the melting plastics from which a part for chlorine was removed are discharged, and in the fuel processing unit 7, it is processed so that it may become the fuel of a form according to the purpose.

[0007]

[Problem(s) to be Solved by the Invention] However, there are the following problems in the conventional method mentioned above. That is, since the organic substance like the plastics itself or the various hydrocarbons which are a main product by the pyrolysis of the plasticizer usually added by plastics is mixing into the collected hydrochloric acid or a chloride, the debasement of the collected hydrochloric acid or a chloride has been caused. In order to use the hydrochloric acid which carried out [above-mentioned] recovery, and a chloride as a high grade product with the high goods value which was excellent in quality, while reprocessing steps, such as distillation and re-crystallization, are required, therefore work is complicated, the rise of a manufacturing cost is not avoided.

[0008] Therefore, the purpose of this invention solves the problem mentioned above, and decomposition processing of the waste plastics containing a polyvinyl-chloride resin is carried out chemically. While obtaining the good fuel which

removes a part for the chlorine contained in the polyvinyl-chloride resin, and does not contain chlorine It is in offering how the hydrogen chloride generated by disassembly of a polyvinyl-chloride resin is economically [easily and] recoverable as the hydrochloric acid or the various chlorides of a high grade.

[0009]

[Means for Solving the Problem] this invention person etc. repeated research wholeheartedly that how the hydrogen chloride produced by disassembly of a polyvinyl-chloride resin at the time of chemical decomposition processing of waste plastics is economically [easily and] recoverable from a viewpoint mentioned above as the hydrochloric acid or the various chlorides of a high grade with an easy facility should be developed. Consequently, when hydrogen peroxide solution was added in the solution of the hydrochloric acid containing an impurity like a hydrocarbon collected from the hydrochloric-acid absorption tower, or a chloride, it oxidized and hydrogen peroxide solution decomposed the hydrocarbon which is the aforementioned impurity, the knowledge of the ability to collect the hydrochloric acids or chlorides of a high grade was carried out.

[0010] This invention is made based on the above-mentioned knowledge. invention according to claim 1 While carrying out decomposition processing of the waste plastics containing a polyvinyl-chloride resin chemically and obtaining the fuel of a solid-state or a liquid In the art of the waste plastics which collect the hydrogen chlorides produced by disassembly of the aforementioned polyvinyl-chloride resin as a hydrochloric acid or various kinds of chlorides By adding a hydrogen peroxide in the solution of the hydrochloric acid by which recovery was carried out [aforementioned], or various chlorides, making the organic substance contained in the solution of the aforementioned hydrochloric acid or various chlorides react with the aforementioned hydrogen peroxide, oxidizing and decomposing and removing the aforementioned organic substance It has the feature to collect as the hydrochloric acid or the various chlorides of a high grade.

[0011] It is characterized by invention according to claim 2 performing disassembly of the polyvinyl-chloride resin in a method according to claim 1 by the pyrolysis by which induction is carried out by heating the aforementioned waste plastics to the temperature of 200 to 360 degrees C. Invention according to claim 3 the hydrogen chloride generated by disassembly of a polyvinyl-chloride resin in a method according to claim 1 It is what is characterized by making a hydrochloric acid, and nothing and the aforementioned hydrochloric acid react with the aforementioned hydrogen peroxide when it carries out scrubbing, using water as an absorption medium. and invention according to claim 4 It has the feature to make the hydrogen chloride generated by disassembly of the above-mentioned polyvinyl-chloride resin react with the solution of the alkaline matter, and make the solution of various chlorides, and the solution of nothing and the various aforementioned chlorides react with the aforementioned hydrogen peroxide.

[0012]

[Embodiments of the Invention] Next, this invention is explained, referring to a drawing. Drawing 1 is process drawing showing one embodiment of this invention method. As shown in a drawing, the waste plastics containing a polyvinyl-chloride resin The cracked gas which was heated by predetermined temperature by the melting basin 4 and/or the screw feeder 3, fused, caused the pyrolysis reaction, and occurred in pyrolysis reaction time By being led to the hydrochloric-acid absorption tower 5, and carrying out scrubbing into an absorption tower 5 by the carrier gas blown into the melting basin 4, using water as an absorption medium While being discharged from the exhaust port prepared in the bottom section as a raw salt acid after being absorbed by water, the offgas which is not absorbed by water After being discharged from the hydrochloric-acid absorption tower 5 and carrying out combustion processing in the off-gas processing unit 6, the melting plastics which were diffused in the atmosphere and discharged from the melting basin 4 and from which chlorine was removed In the fuel processing unit 7, it is the same as usual to be processed so that it may become a fuel gestalt according to the purpose.

[0013] By forming the refining processing tub 8 in the degree of the hydrochloric-acid absorption tower 5, sending into the refining processing tub 8 the raw salt acid discharged from the hydrochloric-acid absorption tower 5, adding the hydrogen peroxide of the specified quantity and mixing in the refining processing tub 8, in this invention, it is made to react with a hydrogen peroxide, and oxidative degradation of the organic substance contained in the aforementioned raw salt acid is carried out, and it is removed. Thus, the refined salt acid of a high grade is obtained in the refining processing tub 8.

[0014] In collecting the hydrogen chlorides produced by disassembly of a polyvinyl-chloride resin as various chlorides, it makes with the solution of various chlorides by making the cracked gas which occurred in the pyrolysis reaction time which can be set melting-basin 4 react with alkaline matter solution, such as a sodium hydroxide, in an absorption tower. By sending these various chloride solution into the refining processing tub 8, adding the hydrogen peroxide of the specified quantity and mixing in the refining processing tub 8, it is made to react with the aforementioned hydrogen

peroxide, and oxidative degradation of the organic substance contained in the aforementioned chloride solution is carried out, and it is removed. Thus, the various chlorides of a high grade are obtained in the refining processing tub 8.

[0015] It is desirable to perform disassembly of a polyvinyl-chloride resin performed in the aforementioned melting basin 4 by the pyrolysis by which induction is carried out by heating waste plastics to the temperature of 200 to 360 degrees C. A pyrolysis does not arise [the heating temperature to waste plastics] at less than 200 degrees C, but on the other hand, if heating temperature exceeds 360 degrees C, the problem which a melt coking-izes will arise. Desirable heating temperature is within the limits of 250-350 degrees C.

[0016]

[Example] Next, an example explains this invention. Waste plastics were processed according to the process shown in drawing 1. That is, the waste plastics crushed in the crusher 1 were supplied to the melting basin 4 through the hopper 2 and the screw feeder 3, and were fused at the temperature of 300 degrees C in the melting basin 4.

[0017] Into the melting basin 4, nitrogen gas was blown as carrier gas, and the cracked gas produced by the pyrolysis reaction by melting of waste plastics was blown into the hydrochloric-acid absorption tower 5 by carrier gas. the cracked gas blown into the absorption tower 5 -- a column -- it was absorbed by the water injected from the upper part inside, and collected as a raw salt acid of the concentration of about 20 wt(s).% which contains about 5000 ppm hydrocarbon as a COD

[0018] The above-mentioned raw salt acid collected in the absorption tower 5 was sent into the refining processing tub 8, in the refining processing tub 8, 30% hydrogen peroxide solution of the amount of the 3.5 weight sections was added in the raw salt acid, mixed stirring was carried out to the raw salt acid 100 weight section, and both were made to react. Consequently, the refined salt acid from which the hydrocarbon in a raw salt acid was all removed substantially was obtained.

[0019] In addition, although the concentration of the raw salt acid before refining processing was diluted a little with the dilution water of hydrogen peroxide solution, and the generation water by oxidation reaction and it fell from 20wt (s).% to 19.4wt(s).% of the beginning, the substantial obstacle by this was not produced.

[0020]

[Effect of the Invention] A useful effect is brought about on the industry which can carry out decomposition processing of the waste plastics which were described above, and which contain a polyvinyl-chloride resin like according to this invention chemically, and can collect easily and economically the hydrogen chlorides produced by disassembly of a polyvinyl-chloride resin with an easy facility as the hydrochloric acid or the various chlorides of a high grade.

[Translation done.]